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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/749,201

12/31/2003

Philip Sean Stetson

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TEXAS INSTRUMENTS INCORPORATED

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EXAMINER

SINGH, RAMNANDAN P

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2614

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|--|-----------------|----------------|--|
| <div style="border: 1px solid black; width: 150px; height: 20px; margin: 0 auto;"></div> <p style="text-align: center;">Office Action Summary</p> | Application No. | Applicant(s) | |
| | 10/749,201 | STETSON ET AL. | |
| | Examiner | Art Unit | |
| | Ramnandan Singh | 2614 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.138(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>Dec. 31, 2003</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 12 and 13 are objected to because of the following informalities: Claim 12 recites the limitation "means for tuning the separating means to provide the separating means" in line 3. There is a duplication of "the separating means". A similar thing holds for claim 13. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 7-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 7 recites the limitation " comprising a tuning algorithm that

selectively adjusts one variable passive component in the tunable filter" in lines 1-3. The disclosure does not teach any details on the tuning algorithm. As such, one skilled in the art will not be able to make and/or use the invention without undue experimentation. See MPEP 2164.01 (8th Edition).

Claims 8-11 being dependent from claim 7 are also not enabled.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 12-17, 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Vanderbauwhede et al [US 20010021250 A1].

Regarding claim 1, Vanderbauwhede et al a system shown in Fig. 1, comprising:

a tunable filter (5) driven by an output signal of a transmitter [Para:

0021-0024] to provide a filtered output signal, the tunable filter including at least one tunable component (Para: 0032) that is adjustable by a microprocessor (4) to provide the filter with a desired transfer function corresponding to loop characteristics of an associated communications network, the filtered output signal being combined with a signal from the associated communications network to provide a receiver signal that is substantially free from echo caused by the output signal of the transmitter [Figs. 1-3; Para: 0021-0062].

Claims 12 and 16 are essentially similar to claim 1 and are rejected for the reasons stated above.

Regarding claim 2, Vanderbauwhede et al further teach the system, the associated communications network comprising a digital subscriber link [Fig. 1; Para: 0001; 0021; 0062].

Regarding claim 3, Vanderbauwhede et al further teach the system, the tunable filter further comprising a hybrid circuit (5) comprising at least one amplifier stage (20) and at least one tunable component located in at

least one of a feedback path (Z_{fb}) and a feedforward path (of the amplifier stage [Figs. 2-3].

Regarding claim 17, the limitation is shown above.

Claim 19 is essentially similar to claim 3 and is rejected for the reasons stated above.

Regarding claim 20, Vanderbauwhede et al further teach the method, the at least one of a feedforward path and a feedback path further comprises a capacitor network, the selectively adjusting further comprises setting a desired capacitance for the capacitor network that provides the desired frequency response [Figs. 2-3; Para: 0034-0036].

Regarding claim 4, Vanderbauwhede et al further teach the system, comprising a line coupling network (3) that provides an interface between the transmitter and the associated communications network (XDSL) [Fig. 1; Para: 0021-0022].

Regarding claim 5, Vanderbauwhede et al further teach the system, the signal from the associated communications network comprising an aggregate line signal that includes a component corresponding to the echo caused by the transmitter output signal and a receiver signal component, the system further comprising a summer that combines the filtered output signal from the tunable filter and the aggregate line signal to provide the receiver signal that is substantially free from echo caused by the output signal of the transmitter [Fig. 1; Para: 0023; 0048; 0058].

Regarding claim 6, Vanderbauwhede et al further teach the system, comprising a control system (4) operative to selectively configure the tunable filter to mitigate the echo caused by the output signal of the transmitter [Fig. 1; Para: 0023; 0027-0037].

Regarding claim 13, Vanderbauwhede et al further teach the system, comprising means for selectively adjusting an impedance parameter for separating with the desired frequency response [Fig. 3; Para: 0034-0039].

Regarding claim 14, Vanderbauwhede et al further teach the system,

the impedance parameter comprising at least a capacitance parameter
[Fig. 3; Para; 0032; 0034-0037].

Regarding claim 15, Vanderbauwhede et al further teach the system, the desired frequency response being adaptable to a plurality of predetermined frequency bands associated with the loop impedance and line coupling characteristics [Fig. 3; Para: 0034-0036].

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 18, 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vanderbauwhede et al applied to claims 16 and 17 above, and further in view of Henrie [US 6,751,202 B1].

Regarding claim 18, Vanderbauwhede et al do not teach expressly the method determining loop impedance using a test signal.

Henrie teaches a method of determining the loop impedance characteristics by applying a test signal at a transmitter output (i.e. DAA output) comprising the transmitter signal [Fig. 1; col. 3, lines 60-62].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Henrie with Vanderbauwhede et al in order to correctly set the gain switches to adapt the cho cancellation for the given environment [col. 3, lines 39-41].

Regarding claim 21, the limitations are shown above.

Regarding claim 22, the combination of Vanderbauwhede et al and Henrie teaches the method, the selectively adjusting further comprises:

setting a tunable parameter that changes the frequency response of a hybrid circuit driven by the transmitter signal [Vanderbauwhede et al; Figs. 2-3] applying a test signal to an associated communications network

[Henrie; Fig. 1; col. 3, lines 60-62]; and determining a ratio of a received signal relative to the transmitter signal [Vanderbauwhede et al; Para:0007].

Regarding claims 23-24, the limitations are shown above.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(i) Wilson et al [US 20010033650 A1] teach optimizing hybrid networks for different phone line characteristics [Figs. 16a, 16b, 19; Para: 0139]; and

(ii) Grisamore et al [US 6,445,791 B1] teach tuning a hybrid circuit 300 for echo cancellation [Figs. 3-5; col. 5, line 59 to col. 7, line 61].

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (571) 272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ramnandan Singh
Examiner
Art Unit 2614

A handwritten signature in black ink, appearing to read 'Ramnandan Singh', written over a horizontal line.